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| 10/605,773 | 10/24/2003 | Brian Neal Caldwell | BUR920030109US1 | 2772 |

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| EXAMINER |
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TALBOT, MICHAEL

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| ART UNIT | PAPER NUMBER |
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3722

DATE MAILED: 06/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/605,773

Applicant(s)

CALDWELL ET AL.

Examiner

Michael W. Talbot

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-21,24-35 and 37-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-21,24-35 and 37-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Applicant's Appeal Brief and request for reconsideration of the finality of the rejection of the last Office action have been received on 02 March 2006. It has been determined to be persuasive and therefore the finality of that action is withdrawn.

A rejection based on the newly cited reference(s) Okuda '338 and JP 06177141 in combination with prior art of record reference(s) Di Milia et al. '192 and Lund '044 are as presented below.

Claim Objections

1. Claims 19, 34 and 39 are objected to because of the following informalities:

Claim 19 recites the limitation "the shape" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 34 recites the limitation "the height" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 39 recites the limitation "the shape" in lines 1 through 2. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,4 and 8-10 are rejected under 35 U.S.C. 103(b) as being unpatentable over Okuda '338 in view of Di Milia et al. '192. Okuda '338 shows in Figures 5 and 6 a chuck assembly (50) comprising a base plate (52), individually controlled height adjustment

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mechanisms (62,64 and col. 5, line 66 through col. 6, line 10) connected to the base plate and chuck pins (64) connected to the height adjustment mechanism. Okuda '338 shows the height adjustment mechanisms being adapted to individually adjust positions of the chuck pins to compensate for flatness deformities caused by foreign matter particles (70) in a device/wafer (54) being held by the chuck pins (col. 5, line 66 through col. 6, line 10). Okuda '338 lacks the chuck assembly being an electrostatic chuck with electrostatic chuck pins.

Di Milia et al. '192 shows in Figure 3 an electrostatic pin chuck (12) having pins (30) that are electrostatic due to the silicon dioxide film coating of the pins. Furthermore the Abstract, lines 13-17, provides additional support that the pins of the electrostatic chuck function as electrostatic pins. In view of this teaching of Di Milia et al. '192, it would have been obvious to one of ordinary skill in the art to replace the chuck assembly of Okuda '338 with an electrostatic pin chuck assembly as taught by Di Milia et al. '192 to increase the versatility of the electrostatic pin chuck since it can now be used in vacuum environments (col. 2, lines 1-3 and col. 6, lines 31-36) and to provide an improved holding force between the wafer the electrostatic pin chuck when the holding source is turned off (col. 6, lines 14-31).

4. Claims 1,4 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuda '338. Okuda '338 does not disclose expressly that the chuck assembly is an electrostatic chuck assembly. Instead, Okuda '338 indicates that the chuck assembly is a vacuum chuck assembly. At the time of the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to select "an electrostatic chuck assembly" because Applicant has not disclosed that the "electrostatic chuck assembly" provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected the chuck assembly of Okuda '338, and Applicant's chuck assembly to perform equally well with either "the vacuum chuck assembly" as taught by

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Okuda '338 or the claimed "electrostatic chuck assembly" because both chuck assemblies disclose equivalent sources for providing ample holding forces to a wafer on a chuck that is well-known in the wafer chucking industry.

Furthermore, Applicant does not provide any criticality or unexpected results for the "electrostatic chuck assembly" as recited in claim 1.

5. Claims 5-7,11-21 and 24-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuda '338 in view of Di Milia et al. '192, further in view of JP 06177141. Okuda '338 in view of Di Milia et al. '192 lack specific reference to the height adjustment mechanisms comprising computer controlled devices that automatically maintains a flatness of an object held by the electrostatic chuck pins. JP 06177141 shows in Figures 1-4 a chuck assembly (20) comprising height adjustment mechanisms (13) having computer controlled devices (13,17,19,30), inclusive of piezoelectric actuators (17) and a measurement tool (30), to automatically maintain a flatness and/or change a shape of a device/wafer (11), based upon feedback from the measurement tool (Abstract), to meet a pre-existing standard. In view of this teaching of JP 06177141, it would have been obvious to one of ordinary skill in the art to modify the electrostatic chuck of Okuda '338 in view of Di Milia et al. '192 to include computer controlled components as taught by JP 06177141 to provide enhanced control of the height adjustment mechanisms and continuous monitoring capabilities of the device/wafer's outer surface characteristics in preparation for the next operation.

6. Claims 34,35 and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuda '338 in view of Di Milia et al. '192 in view of JP 06177141, further in view of Lund '044. Okuda '338 in view of Di Milia et al. '192 in view of JP 06177141 lack specific reference to the measurement tool being an interferometer. Lund '044 shows in Figures 10-13 a computer (60) for receiving the real-time data from a measurement tool (101), such as an interferometer, to

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monitor any number of desired parameters, such as thickness that can be related to flatness. In view of this teaching of Lund '044, it would have been obvious to one of ordinary skill in the art to modify the chuck assembly of Okuda '338 in view of Di Milia et al. '192 in view of JP 06177141 to use an interferometer as the measurement tool as taught by Lund '044 to provide another well-known measurement tool in the chuck assembly art for measuring any number of key parameters for improved quality control prior to any finishing operation.

Response to Arguments

7. Applicant's arguments filed in Appeal Brief dated 02 March 2006 have been fully considered but they are not persuasive based on the newly cited reference(s) Okuda '338 and JP 06177141 in combination with prior art of record reference(s) Di Milia et al. '192 and Lund '044 as presented above.

Conclusion

8. Any inquiry concerning the content of this communication from the examiner should be directed to Michael W. Talbot, whose telephone number is 571-272-4481. The examiner's office hours are typically 8:30am until 5:00pm, Monday through Friday. The examiner's supervisor, Mrs. Monica S. Carter, may be reached at 571-272-4475.

In order to reduce pendency and avoid potential delays, group 3720 is encouraging FAXing of responses to Office Actions directly into the Group at FAX number 571-273-8300. This practice may be used for filling papers not requiring a fee. It may also be used for filing papers, which require a fee, by applicants who authorize charges to a USPTO deposit account. Please identify Examiner Michael W. Talbot of Art Unit 3722 at the top of your cover sheet.



MWT
Examiner
31 May 2006


MONICA CARTER
SUPERVISORY PATENT EXAMINER